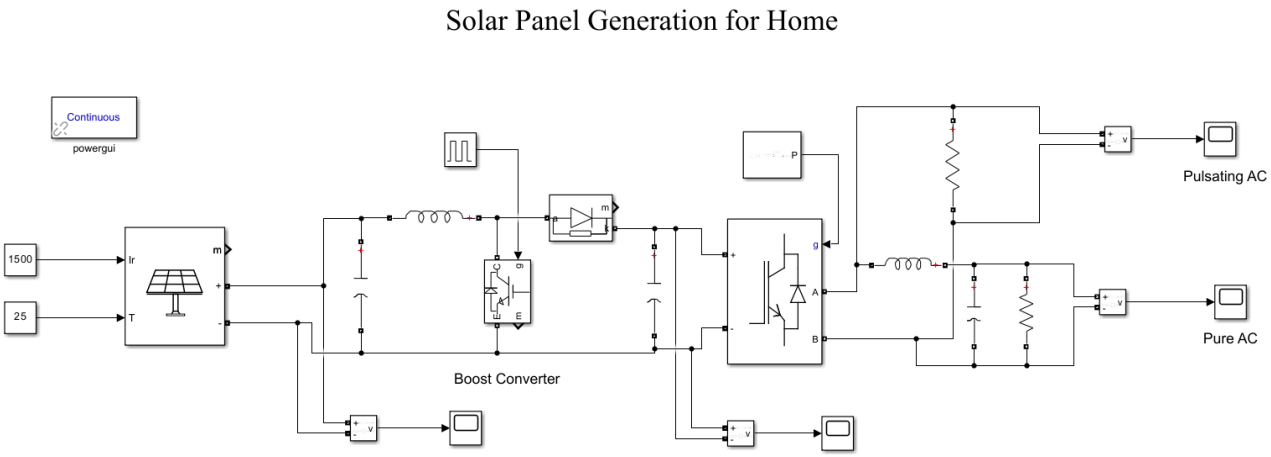
Solar Power Generation for Home:

#using MATLAB Simulink

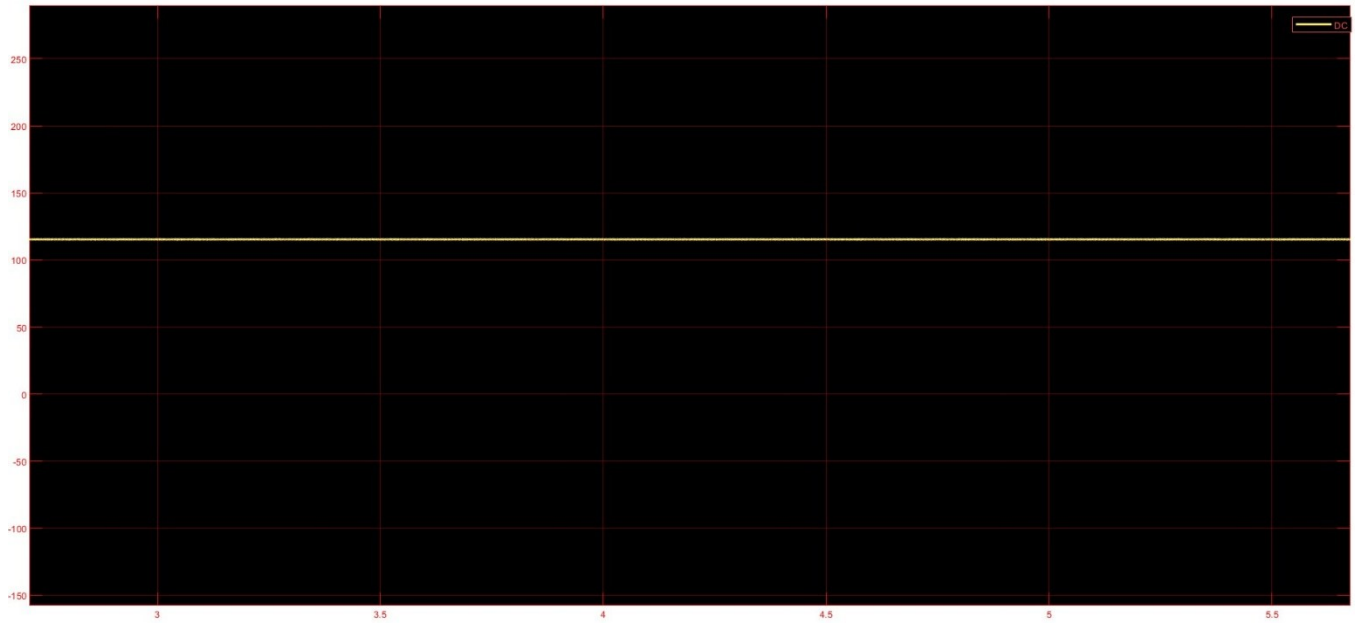
Elements Required:

Solar Panel, nothing but the **PV Panel**, we are getting the direct power from the solar panel Input in the PV panel as radiation and temperature the output should be DC. But our homes require AC. So, to convert that DC, we need **Inverter**. So, it's just converting that DC to pulsating AC, not pure AC. Again, to convert this pulsating AC to pure AC, we need a **Passive Filter (LC / LCL Filter)**. In solar, output DC is depending on temperature and radiation. Basically, temperature isn't constant in nature, it's varying from morning to afternoon. But we need to give the load to a constant supply. So further purpose we need to boost up the voltage. So, need of a **Boost Converter**. We can also use **Step-Up Transformer** to boost the voltage. There are several switches in boost converter, so to turn on or turn off the switches, **Pulse Generator** is used. We need to take a **Capacitor** between the solar panel and the boost converter because in the solar we are not getting the continuous supply, it's varying. So, to reduce the ripple factor, we need this capacitor.

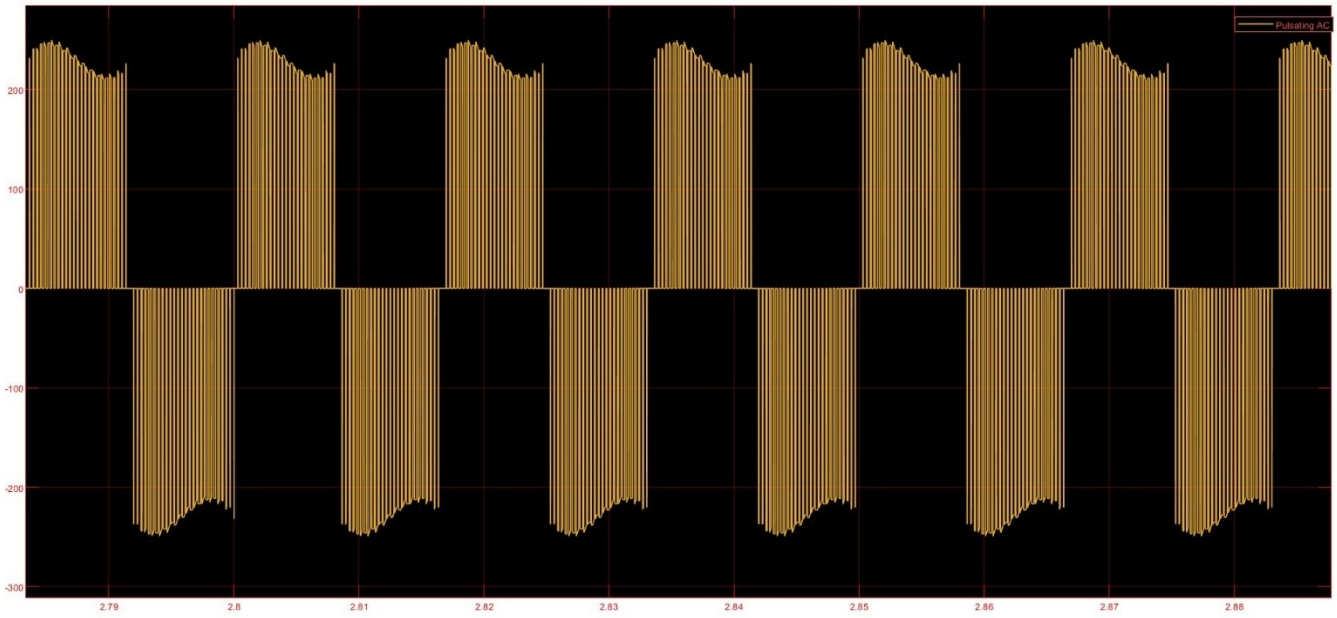
Circuit Diagram:



Generated DC (120V apx.):



Converted as Pulsating AC (240V apx.):



Converted as Pure AC: